



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/601,918

06/24/2003

Viktor Mikhailovskii

6823

7590  
Viktor Mikhailovskii  
47 Westroyal Rd  
Toronto, ON M9P 2C4  
CANADA

08/21/2007

EXAMINER

LITHGOW, THOMAS M

ART UNIT

PAPER NUMBER

1724

MAIL DATE

DELIVERY MODE

08/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/601,918

**Applicant(s)**

MIKHAILOVSKII ET AL.

**Examiner**

Thomas M. Lithgow

**Art Unit**

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) none is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

THOMAS M. LITHGOW  
PRIMARY EXAMINER  
GROUP 1700

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikindai (US 3479281). Kikindai '281 discloses a flotation process, which employs gas bubbles generated by air dissolved in a recirculated water stream (fig. 3). The gas bubbles rise through the liquid in the tank 10 attach to the to the particles in the liquid, float to the surface of the liquid where the bubble breaks and the solids remain at the liquid surface forming a sludge 50 [col. 3, lines 43-46 and col. 6, lines 18-20]. The concentrated sludge is subsequently removed by various means (i.e. belt 22, or belt/paddles 36/37). The bubbles break at the surface and therefore are "unstable" as recited in the claims. Bubbles which are rising in a liquid due to its buoyant nature will grow in size due to the reduced hydrostatic pressure surrounding the bubble as it moves upwardly. See Williams (US

4173533) – col. 5, lines 1-10. This will inherently happen in the Kikindai process as the bubbles rise upwardly to the surface of the liquid which is at atmospheric pressure. The sludge, collectively at the top of the liquid layer is considered to have been aggregated together.

3. Claims 1, 5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Lemlich “Adsorptive..techniques”. Lemlich (chapter 7) discloses a process for water treatment in which bubbles are released into a liquid (liberated gas under pressure – i.e. dissolved gas- pg. 135, top), which floats up through the liquid adsorbing onto a component in the liquid. The bubble is unstable and breaks as it reaches the surface of the liquid (definition of bubble fractionation). The component is concentrated in the upper layer of the liquid and may subsequently be removed.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams (US 4173533) in view of either one of Kikindai (US 3479281) or Lemlich (Adsorptive...techniques). Williams '533 discloses the flotation of oil and particles from water in a pipe or column 30 in which oil contaminated water is fed into the column half way down while sparged air is fed at the bottom of the column to establish a generally countercurrent flow of bubbles and water [col. 6, lines 50-68]. The bubbles attach to the droplets, which rise to the surface of the column where the gas is released and recycled while the oil is collected. The secondary references disclose the general concept that sparged air will operate similar to dissolved air in a bubble fractionation arrangement (unstable bubbles). Based on the teaching of the secondary references, the substitution of one form of bubble origin (gas dissolved in a liquid) for another (sparging) would have been obvious to one of ordinary skill in the art.

6. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Kikindai '281 or Lemlich as applied to claim 1 above, and further in view of either one of CA 2302110 or Katzer (US 3461674). The use of flotation to cause an initial bubble particle adsorptive interaction which results in a bubble particle composite that floats to the

upper surface followed by allowing the bubble to collapse and recovering the floated solids as a precipitate at the water bottom is taught by either one of CA 2302110 or Katzer '674. To recover the water contaminant in either of Lemlich or Kikindai '281 in such a manner would have been obvious to one of ordinary skill in the art.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1 and 5-8 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

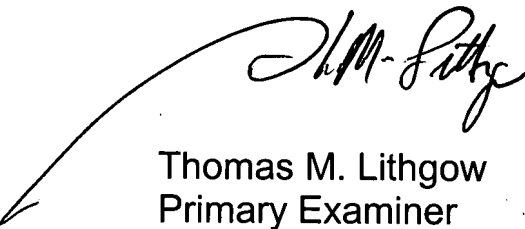
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory

period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Lithgow whose telephone number is 571-272-1162. The examiner can normally be reached on Mon. -Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thomas M. Lithgow  
Primary Examiner  
Art Unit 1724

TML